REMARKS

Claims 1-21 are pending in this application. Claims 1, 14 and 19 are independent in form. Claims 1-3, 8, 10, 13-17, and 19 are amended herein. New claims 20 and 21 are added herein. Applicants submit that no new matter has been added by way of these amendments or new claims. Applicants respectfully request reconsideration of this application, in view of the above amendment and following remarks.

Double Patenting

1. The Examiner has provisionally rejected Claims 1, 14 and 19 over U.S. Patent No. 6,611,744. A terminal disclaimer overcoming this rejection is being submitted herewith.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 14 and 18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,275,754 ("Shimizu"). Claims 2-13 and 15-17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of U.S. Patent No. 4,214,266 ("Myers"). Claim 19 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of U.S. Patent No. 5,485,378 ("Franke"). Applicants respectfully traverse these rejections.

Independent Claims

2. Amended claim 1 recites an apparatus for aiding steering when a vehicle is being driven in reverse, the moving direction of the vehicle being determined in response to the angle of steered wheels, the apparatus comprising: a camera for capturing an image of an area behind

the vehicle; a monitor for displaying the image captured by the camera; a detector for detecting the angle of the steered wheels; and ***a display control unit for displaying a guide marking for aiding steering, the marking and the image being simultaneously displayed on the monitor when the vehicle is being driven in reverse, wherein the marking provides a driver with at least first and second indications, wherein the first indication is a fixed reference guide displaying vehicle width projecting behind the vehicle and showing a path of the vehicle corresponding to the angle of zero degrees of the steered wheels, and wherein the second indication shows a prospective path of the vehicle corresponding to the current angle of the steered wheels detected by the detector.***

Shimizu discloses an automatic steering system for a vehicle. Shimizu's system detects a steering angle of a wheel of the vehicle as the vehicle is moved. Steering angle data is provided to a control section that controls a steering actuator to automatically steer the vehicle in accordance with four parking modes. Shimizu's system is further comprised of an object detector, which continuously detects a position of an object in the vicinity of the vehicle; when there is a possibility that a moving object may enter into the locus of movement of the vehicle, a warning is provided to the driver and an automatic brake is operated. (*See* Shimizu, Abstract).

More particularly, Shimizu discloses an automatic parking control system in which a control section 22 controls a steering actuator 7, which actuates the steering wheel, so that the vehicle is automatically moved along an assumed path that is calculated based on signals from the eight object detecting means S6. (*See* Shimizu, col. 6, lines 25-30). That is, in Shimizu's system, the angle of the steered wheels detected by the steering angle detecting means

is used for controlling the actuator 7 so that the vehicle is automatically moved along the assumed path. However, the steering angle detecting means is not used for calculating the assumed path. The "assumed path" is a target path along which the vehicle should be automatically moved, but is not a prospective path corresponding to the ***current angle*** of the steered wheels. (emphasis added)

Moreover, in Shimizu's system, if the driver operates the steering wheel during the automatic parking control, the automatic parking control is canceled. (*See* Shimizu, col. 7, lines 31-46). That is, the driver of Shimizu's system does not steer the vehicle during automatic parking operations. Claims 1 and 14 are directed to an "apparatus for aiding steering when a vehicle is being driven in reverse." Similarly, the method of claim 19 is "for aiding steering when a vehicle is driven in reverse." Thus, the system disclosed in Shimizu is completely different from the claimed invention.

The Examiner asserts that Shimizu discloses an apparatus for aiding steering a vehicle being driven in reverse that has a display control for "displaying vehicle width projecting behind the vehicle." More particularly, the Examiner asserts that Shimizu discloses in FIGS. 12 and 16, displaying a width "B" of the vehicle on a monitor. (*See* December 29, 2004 Office Action, p. 3).

The vehicle width "B" shown in FIGS. 12 and 16 is illustrated for explaining a method of determining an optimal parking position, but is not displayed on the display device 11. (*See* Shimizu, col. 4, lines 13-15 and 24-26). That is, FIGS. 12 and 16 merely show the relationship between the position of the vehicle and the parking space as viewed from above, but

do not show an image of an area behind the vehicle captured by the camera. Thus, Shimizu fails to disclose, teach or suggest "displaying vehicle width projecting behind the vehicle" are required by claim 1.

The Examiner further asserts that Shimizu discloses in FIG. 1, "second indication of a prospective path of the vehicle corresponding to the angle of the steered wheels." (*See* December 29, 2004 Office Action, p. 3). The Examiner states that "controller 22 'which receives signals from the steering angle detection and detecting angels of the wheels S1, S3' controls the steering and the operation stage display 11, and figs. 3a-3c, 4, and 10, col. 5, lines 65 – col. 6, lines 15, shows the first and second indication and the prospective path of the vehicle corresponding to the angle of the steered wheels on the display." (*See* December 29, 2004 Office Action, p. 3).

Although Shimizu discloses steering angle detecting means S1 and S3, Shimizu does not disclose that the angles of the steered wheels detected by the steering angle detecting means S1 and S3 are used for calculating a presumed path of the vehicle. Instead, Shimizu's presumed path, which is displayed on a display device 11, is calculated based on signals from eight object detecting means S6. (*See* Shimizu, col. 5, line 66 to col. 6, line 11). The object detecting means S6 are sonar or radar systems, which do not detect the steered angle of the steered wheels. (*See* Shimizu, col. 5, lines 4-5). Accordingly, in Shimizu's system, even if the current angle of the steered wheels is changed, the presumed path will not change.

Thus, Shimizu does not disclose, teach or suggest a second indication that "shows a prospective path of the vehicle corresponding to the ***current angle*** of the steered wheels detected by the detector" as required by claim 1. (emphasis added)

The Examiner further asserts that Shimizu discloses in, FIGS. 5, 6C, and 12 displaying "a fixed reference guide displaying vehicle width projecting behind the vehicle." FIGS. 5 and 12 merely show a relationship between a position of the vehicle and a parking space as viewed from above. That is, FIGS. 5 and 12 do not disclose displaying "a fixed reference guide" in an image of an area behind the vehicle captured by a camera. Further, FIGS. 5 and 12 do not disclose displaying a fixed reference guide "displaying vehicle width projecting behind the vehicle" or "a path of the vehicle corresponding to the angle of zero degrees of the steered wheels" as required by claim 1.

The Examiner argues that the dashed lines shown in FIG. 6C could be considered to be a reference guide for backward parking. (*See* December 29, 2004 Office Action, p. 3). Applicants note the vehicle with "B" is not shown in FIG. 6C. Further, amended claim 1 requires displaying "a fixed reference guide ***displaying vehicle width*** projecting behind the vehicle ***and showing a path of the vehicle corresponding to the angle of zero degrees of the steered wheels.***" (emphasis added) FIG. 6C fails to disclose this claim limitation.

Further, the dashed lines shown in FIG. 6C are based on input from object detecting means S6 and do not disclose displaying "a prospective path of the vehicle

corresponding to the ***current angle*** of the steered wheels detected by the detector" as required by claim 1.

In summary, Shimizu fails to disclose, teach or suggest "a display control unit for displaying a guide marking for aiding steering, the marking and the image being simultaneously displayed on the monitor when the vehicle is being driven in reverse, wherein the marking provides a driver with at least first and second indications, wherein the first indication is a fixed reference guide displaying vehicle width projecting behind the vehicle and showing a path of the vehicle corresponding to the angle of zero degrees of the steered wheels, and wherein the second indication shows a prospective path of the vehicle corresponding to the current angle of the steered wheels detected by the detector" as required by claim 1. Thus, claim 1 is believed to define patentable subject matter.

Claim 14 is directed to a an apparatus wherein a driver completes a parallel parking operation by causing a guide marking, which is fixed at a predetermined position with respect to the monitor screen, to coincide with a target point in the image, and then moves the vehicle in reverse while keeping the steered wheels turned at their maximum angle. Shimizu fails to disclose such a system. More particularly, Shimizu fails to disclose, teach or suggest "superposing and displaying a guide marking for aiding steering upon the image, wherein the guide marking provides a driver with a first indication, which is a fixed reference guide displaying vehicle width projecting behind the vehicle and showing a path of the vehicle corresponding to the angle of zero degrees of the steered wheels, and a second indication showing a prospective path of the vehicle, the prospective path depends on the currently detected

angle of the steered wheels; and causing the vehicle to proceed on a route when the vehicle is driven so that the second indication is positioned at a center of the route, the route being an image of a way behind the vehicle actually displayed on the monitor" as required by claim 14.

Claim 19 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view Franke. Since claim 19 includes many limitations that are similar to those of claim 1, claim 19 is believed to define patentable subject matter for similar reasons as those stated above regarding claim 1.

Franke is directed to a device for steering and maintaining a course of a vehicle. Franke discloses a device for detecting a position of the vehicle, and a steering control device that acts on a steering angle adjustment device. A steering angle setting requested by the control is combined with a steering angle setting requested by a driver, and the steering angle adjustment device sets the steering angle in accordance with this combination. (*See* Franke, Abstract). Frank fails to disclose, teach or suggest displaying markings for aiding steering. Thus, Franke fails to cure the deficiencies of Shimizu.

Independent claim 19 requires "superposing and displaying a guide marking for aiding steering upon the image, wherein the guide marking provides a driver with a first indication, which is a fixed reference guide displaying vehicle width projecting behind the vehicle and showing a path of the vehicle corresponding to the angle of zero degrees of the steered wheels, and a second indication showing a prospective path of the vehicle, the prospective path depends on the currently detected angle of the steered wheels." Neither Shimizu nor Franke, alone or in combination, disclose, teach or suggest this limitation.

Applicants respectfully request withdrawal of the rejection applied to claims 1 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu. Similarly, Applicants respectfully request withdrawal of the rejection applied to claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Shimizu in view of Franke.

Dependent Claims

3. Applicants do not believe it necessary at this time to address the rejections of the dependent claims as Applicants believe that the foregoing places the independent claims in condition for allowance. Applicants, however, reserve the right to address those rejections in the future should such a response be deemed necessary and appropriate.

New claims 20 and 21 ultimately depend from independent claim 1 and are believed to define patentable subject matter for at least similar reasons as those stated above regarding claim 1.

CONCLUSION

It is now believed that all pending claims are in condition for allowance. In view of these remarks, an early and favorable reconsideration is respectfully requested.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 5000-4723. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4500, Order No. 5000-4723. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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Dated: April 29, 2005

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